



September 16, 2005

VIA FACSIMILE, EMAIL and REGULAR MAIL

Mr. Jason Hill
West Central Regional Office
Virginia Department of Environmental Quality
3019 Peters Creek Road
Roanoke, VA 24019

Re: Benthic Impairment TMDL Development for the Roanoke River (Draft)

Dear Mr. Hill:

Please accept the following comments on the draft Benthic TMDL for portions of the Roanoke River. The Authority appreciates the opportunity to provide comment and although lengthy, hopes they will result in an improved document.

As you know, segments VAW-L04R-01 and -02 are located on the main stem of the Roanoke River in the upper section of the basin. A total of approximately 11.3 miles of the River is listed for benthic impairment based on bio-assessment data indicating moderate impairment at three stations.

The August, 2005 draft TMDL Report, prepared for DEQ by George Mason University and The Louis Berger Group, Inc., identifies sediment as the principal stressor. The report concludes that sediment settling in the bed of the river results in habitat impairment, which in turn is the principal cause of the benthic impairment.

The report proposes sediment allocations for non-point sources, MS4s, and individually permitted storm water systems in the basin. The allocation for the Roanoke Regional WPC Plant's VPDES storm water permit appears to be incorrect and does not reflect the correct plant area and influences of storm water from other properties that flow across the plant on its way to the Roanoke River. The rainfall amounts used in the calculations are very conservative. Authority staff would be happy to meet with DEQ to resolve these technical matters to arrive at a correct loading rate. Pending resolution, the Authority objects to the allocation as provided in the draft report.

In contrast to the non-point sources and storm water permit holders, the report singles out two point VPDES permitted discharges – the Roanoke Regional WPC Plant and Roanoke Electric Steel Corporation – and proposes total suspended solids (TSS) waste load allocations (WLAs) for these two facilities. The report fails to provide WLAs for two of the Authority's facilities, the Carvins Cove Water Treatment Plant and the Crystal Spring Filtration Facility. These facilities hold current, active discharge permits and it is not clear as to why these facilities were excluded from the allocation process. The Authority requests that allocations be provided for both facilities and objects to the finalization of the report until this has been completed and reviewed by Authority staff.

The proposed TSS WLA for the Authority's Regional WPC Plant should **not** have been included in the draft TMDL because the light biological solids that make up the effluent TSS load are not sediment (the identified stressor), are not settleable, and do not contribute to in-stream solids deposition.

At any properly operating secondary treatment plant, effluent TSS consist of very light biological floc that is not settleable. By definition, these solids that have escaped settling in the quiescent settling tanks of a wastewater facility are too light to settle in the more turbulent receiving waters.

Generally, a municipal wastewater treatment facility operating below the secondary treatment TSS limitation of 30 mg/l monthly average and 45 mg/l weekly average does not have any settleable component of its TSS. The Authority's Monthly Operating Reports reflect the non-settleable character of the effluent TSS. Those reports are in DEQ's files and are incorporated by reference as if set forth fully herein. EPA's secondary treatment rulemaking preambles also reflect this, and similarly is incorporated by reference.¹

These general comments about the nature of secondary treatment TSS are even more the case for a tertiary facility with filtration such as the Regional WPC Plant. Filtration serves the purpose of removing most of the larger particles of biological floc, and the only TSS that remain in the effluent are those small enough to pass through the small pore spaces of the filter media. This smallest fraction of the floc has the lowest mass to surface area ratio, the least resistance to in-stream turbulence, and therefore the lowest settling potential of any component of wastewater TSS.

These TSS loadings are fundamentally different from the soils, gravel and other solids that result from in-stream erosion, agricultural runoff and non-point source sediment dischargers. In fact, the draft report itself acknowledges in Section 7.1.2 that "only non-settleable solids" are typically found in the effluent. As you know, the Authority is in the process of additional upgrades for the Regional WPC Plant, and anticipates that those upgrades and attendant VPDES permit changes will reflect additional TSS loading. Any such additional TSS loadings would continue to be substantially below the secondary treatment levels referenced above.

The report in Section 4.5 (Stressor Identification Summary) lists the potential sources of sediment loading but does not even mention the Regional WPC Plant or TSS generally. Instead, it states that the "potential sources of sediment loading in the watershed include urban storm water runoff, stream bank erosion, and sediment loss from habitat degradation associated with urbanization." Furthermore, it appears that the report authors did not consider the proposed TSS WLA for the Regional WPC Plant to be a water quality concern because the WLA was established using the loading that results under the weekly average TSS limit in the Regional Plant's existing permit.

In addition to the TSS discussion, multiple references are made through the report regarding the Regional WPC Plant's effluent quality, often quite negative comments, only to conclude later in the text that the discharge does not impact benthic habitat. Examples include sections 3-3, 4-1, 4-2, and 4-4.

¹ 49 Fed. Reg. 37,006 (September 20, 1984); 49 Fed. Reg. 40,405 (October 16, 1984); and proposals cited therein.

As the report notes often, the Regional WPC Plant discharge is below the final of three biological monitoring stations. Although it is not uncommon for a listed segment to extend beyond the final downstream monitoring station, because of the substantial change in hydraulics, the lack of existing physical and chemical data and no biological habitat monitoring, it is difficult to justify regulatory restrictions for any point or non-point discharger to river segment VAW-L04R-02 as proposed in the report.

Of particular concern are the references to the sewer interceptor installation of the late 1990's. The sewer interceptor project was permitted through the appropriate regulatory agencies, including DEQ, and complied with erosion and sediment control requirements. It is unlikely the project would have been undertaken by the City of Roanoke, Roanoke County and the City of Salem had DEQ not required it as part of an enforcement action. If DEQ wishes to retain references to this project in the draft report, it should acknowledge its own culpability with regard to riparian habitat destruction.

The sewer interceptor project can not be used as a basis for determining sediment as the cause of benthic impairment in river segment VAW-L04R-02 simply because the interceptor installation was not conducted within that segment. In fact, there appears to be little, if any, evidence to conclude that sediment is the cause of benthic impairment in river segment VAW-L04R-02 or that impairment even exists.

Further, DEQ should note that the Regional WPC Plant discharges to the river at a point only 0.4 mile from the terminus of the impaired segment VAW-L04R-01. At this point the river characteristics show a substantial change in hydraulics. The permitted 42 mgd Regional WPC Plant flow (which will expand to 62 mgd) is substantially greater than the critical river flows at that location (22 mgd 1Q10).² The resulting combined flows clearly lead to different hydraulics than are represented by the upstream portions of the segment. Again, the draft report provides no evidence to reach a conclusion that Regional WPC Plant TSS are a component of the stressor.

For the reasons listed above, there is no basis for the proposed establishment of a TSS WLA for the Regional WPC Plant. Instead, the final report should state that Regional WPC Plant's effluent TSS does not impact the benthic habitat or cause impairment and that the TMDL imposes no TSS restrictions on the Regional WPC Plant.

Alternate Option

Without waiving the comments above, alternately the Authority would not object to a TSS WLA reflecting 10 mg/l (monthly average) and 15 mg/l (weekly average) at 62 mgd, with written provision in the TMDL that the applicable TSS WLAs for the Regional WPC Plant following further expansion would again be based on design flow and these concentrations, which is a similar to the approach DEQ takes with bacteria TMDLs.

Table 7-1 on page 7-2 provides an allocated load of 472.2 tons per year. While, this allocation may be acceptable for the TSS in the discharge from the facility on an annual basis, it may not be sufficient during periods when higher rain induced flows are being treated by the facility. Page 3-20 acknowledges that the facility "is currently being upgraded to improve its capabilities". Improvements at the Regional WPC Plant will allow for a significantly higher volume of flow to be filtered during periods of higher rain-induced flows entering the facility and will also result in periods when the total suspended solids discharged to the Roanoke River may be higher than 1174 kg/day.

² Fact Sheet, VPDES Permit No. VA0025020 (2004), incorporated by reference.

The amount of TSS contained in the river flow is an indication of the amount of material that remains in suspension in the river flow after a significant portion of sediment may have settled along the river bottom. A comparison between the amount of TSS in the Roanoke River at USGS 02055000 for the period January 1990 thru November 2004 and the flow in the river is provided in Exhibit 1³. As can be seen from this exhibit, the amount of TSS in the river during periods of flows greater than 1000 cfs is substantially greater than during periods of flow of less than 1000 cfs.

The flows at the Regional WPC Plant for the period of May-July 2003 were compared to the flow in the Roanoke River at USGS 02055000⁴ in order to investigate the relationship between river flows and flows at the treatment facility. These data are presented in Exhibit 2. As can be seen from this exhibit, the periods of high flow at the facility coincide with periods of high flow in the Roanoke River (>1000 cfs). As a result, an increase in the discharge of TSS from the Regional WPC Plant during periods of rain-induced flows entering the facility would be insignificant when compared to the TSS in the river during the same periods.

As mentioned previously, the TSS in the effluent from the facility is filtered through sand filters and does not contain settleable solids whereas the TSS in the river during these same periods will generally contain high loads of settleable solids. The benefits of filtration of the high volume flows at the treatment facility during periods of rain-induced flows are that the effluent discharged to the river will have received high levels of treatment during these periods and these very fine particles are generally not settleable whereas the background mass of settleable solids in the river will be very high. The very fine non-settleable solids contained in the treated effluent have not been shown to have any correlation to the benthic impairment that is the subject of the benthic TMDL development. Therefore, there is no reason to limit permitted TSS at the Regional WPC Plant based upon benthic impairment.

From the Authority's perspective, it is very important for DEQ to recognize these points and make corresponding revisions to the report, not only for the technical merits of the points presented, but also because these revisions are essential to our ability to protect public health and the environment.

As you know, the current Regional WPC Plant upgrade involves process changes requiring a re-examination of the total suspended solids (TSS) effluent limits to determine the optimal design for effluent reduction benefits. The design of the upgraded facilities and the process selection are intended to treat higher wet weather flows and reduce bypasses. Engineering aspects of the upgrade include the application of tertiary filters retrofitted with new filter media, filter underdrains, and an air scour backwash system designed to maximize flow at 62 MGD.

If DEQ declines to implement the above requested approaches, the Authority must insist that DEQ comply with state law governing "Plans to Address Impaired Waters," which requires an analysis of the "associated costs, benefits and environmental impact" of addressing impairment. Va. Code § 62.1-44.19:7. The Authority believes this analysis will confirm the comments set forth above, and would request the opportunity to participate in any such analysis by DEQ.

We greatly appreciate DEQ's efforts to date to help the Authority succeed in implementing these massive upgrades and improvements at the plant. We ask your

³ data obtained from http://gisweb.deq.virginia.gov/monapp/station_results.cfm

⁴ http://waterdata.usgs.gov/va/nwis/uv/?site_no=02055000&agency_cd=USGS

careful attention to the TMDL issues, as needlessly stringent TMDL requirements will interfere with environmentally beneficial treatment alternatives such as using a different media during the retrofit project that would allow for filtration of significantly higher flows (e.g., up to approximately 90 MGD), while achieving a TSS concentration of 10 mg/L (monthly average) and 15 mg/l (weekly average) and minimizing bypasses. The TMDL Report can and must be revised to provide the operational flexibility needed to help achieve this important benefit for the River. This matter is critical to successfully developing a system-wide approach to resolving wet weather treatment issues.

Other Comments

The report contains several references to facilities within the study area having connections to or applying for connection to the Authority's sanitary sewer system. For example, the Authority can not confirm the statements contained in Section 2.2 about the Safety Clean facility connecting to the Authority's sewer system. A pretreatment permit application has not been submitted from this entity. Also, if the 13 permit holders referenced in section 6.1.2 are the same as the group listed in Table 2.5 (which has 14 permit holders), then the reference to 11 of these being connected to the Authority's sewer system is incorrect. Further, while some may be connected, their VPDES discharges may not be compatible with the plant's operations, pretreatment requirements or the Authority's obligations regarding its latest Consent Order. Acceptance of these discharges could not occur without significant modifications to the latest Consent Order. Also, while domestic waste from some of these facilities may be accepted, sewer system capacity may not exist for such additional discharges.

Additional minor comments include:

- The first entry in the Table 3-6 of Page 3-9 should be modified to say "13th Street Bridge above the Roanoke Regional WPC Plant as this is more descriptive of the location.
- Section 5.2.2 on page 5.5 fails to include the Town of Vinton and Roanoke County in the land use discussion of urban areas.
- Section 6.3.2 refers to the weather station at the Roanoke Airport as being located in Roanoke County. This should be confirmed as it is believed to be in the City of Roanoke.
- Table 7.3 would appear to have an error for the entry "low intensity residential".

Thank you again for considering the Authority's comments on this critical issue. We appreciate the Department's continuing work on water quality issues in the Roanoke River basin. Authority staff is quite willing to review these comments with you and the report authors and will be call shortly to schedule a meeting for that purpose.

Sincerely,

Michael T. McEvoy
Executive Director, Wastewater Services

cc: Gary Robertson, Executive Director, Water Operations
Scott Shirley, Director WPC
File, TMDL Development

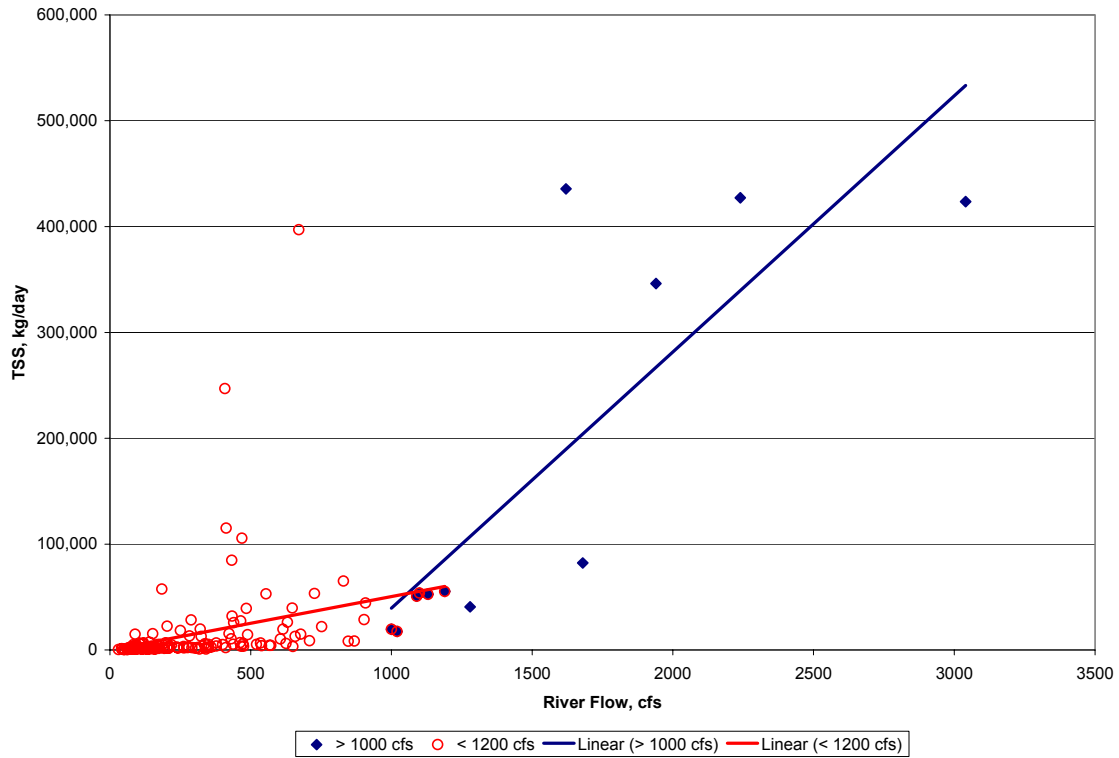


Exhibit 1 – TSS in Roanoke River at USGS 02055000 versus River Flow Rate

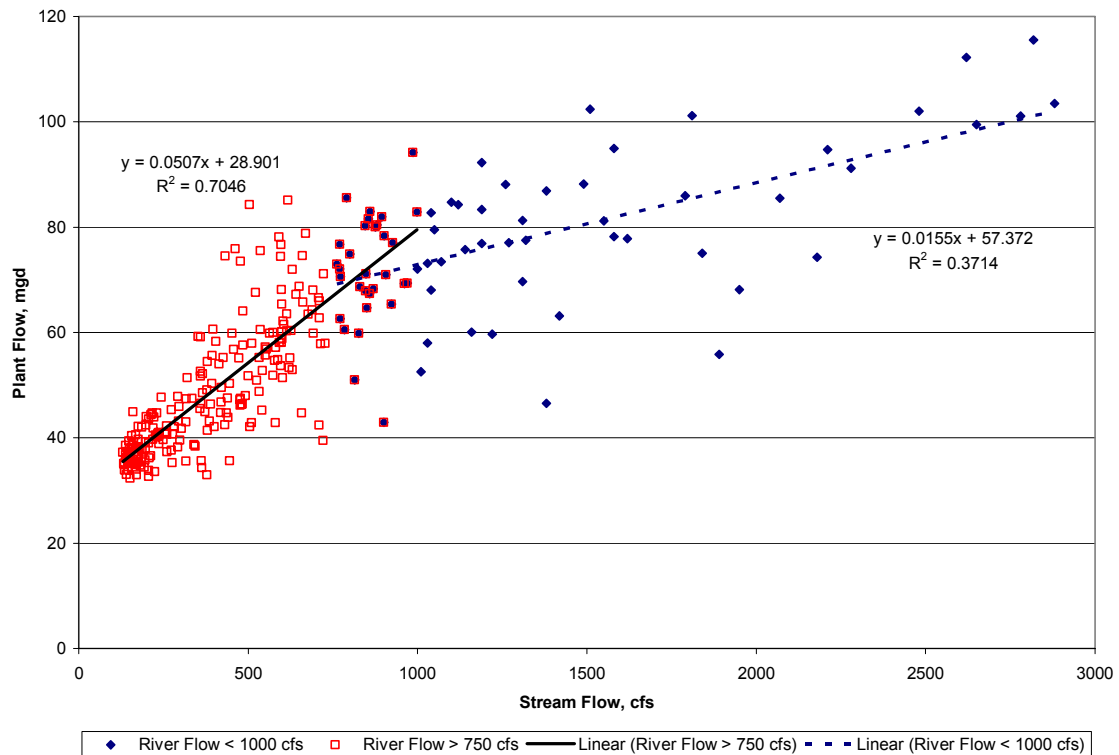


Exhibit 2: WWA WPCP Flow as a function of Flow in Roanoke River at Roanoke



November 3, 2005

VIA EMAIL and REGULAR MAIL

Mr. Jason Hill
West Central Regional Office
Virginia Department of Environmental Quality
3019 Peters Creek Road
Roanoke, VA 24019

Re: Total Suspended Solids Allocation for the Regional Water Pollution Control Plant contained in the draft Benthic TMDL for the Roanoke River

Dear Mr. Hill:

Please accept my appreciation for taking the time to meet with Scott Shirley and me regarding the above-referenced TMDL. During the meeting, several concerns raised by the Authority during the comment phase were resolved including:

- DEQ agreement to issue total suspended solids (TSS) allocations to Authority-permitted facilities not previously addressed;
- DEQ agreement to remove extraneous references to the Authority's operations that have no impact upon the TMDL discussion; and
- Review of the Regional Water Pollution Control (WPC) Plant's storm water permit allocation including confirmation of the plant's area and rainfall total use in the calculations.

As confirmed by me in a subsequent email, the figure for the WPC Plant's area used by DEQ in the calculation was correct. I appreciate DEQ's willingness to look at a different, more appropriate rainfall value in the calculation.

The remaining item - the Authority's objection to a TSS allocation for the WPC Plant was left unresolved. I want to restate that the Authority does not believe the Plant's TSS discharge affects benthic diversity as the solids released by the Plant are not comparable to the sediment causing the impairment.

The TSS released by the WPC Plant is light, biological solids with a specific gravity slightly above 1.0. For these solids to be discharged, they had to pass through systems engineered for both settling and filtration. These solids simply are not going to settle easily, if at all, in the turbulent environment of the Roanoke River. In fact, recent testing conducted as part of the ongoing filter performance study indicates that the settleable solids portion of the TSS is non-detectable. This means is that most, if not all, of the TSS load is either colloid or material so light that gravity settling is not achievable. In my opinion it is unlikely these materials would settle without a change in electrostatic charge.

By contrast, the sediment discharged during rain events (the identified stressor) has a specific gravity of 2.5 or better, is very settleable, and contributes to in-stream solids deposition. In most cases these solids have received no treatment and represent a range of diameter and particle sizes. Thus TSS loading is fundamentally soil, gravel and other solids that result from in-stream erosion, agricultural runoff, land clearing, and other various non-point source sediment discharges.

In addition, the filter testing indicates that the TSS load is at least 45% volatile. This was somewhat of a surprise in that typically TSS discharges from wastewater plants are 65 to 75% volatile. Ultimately however, this is good news as it means that there is less organic material to be degraded by microorganisms in the river environment. Dissolved oxygen (DO) monitoring by the Authority downstream of its outfall demonstrates that even degradation of this remaining fraction is not a problem as the river does not demonstrate the oxygen sag that computer models might predict. This DO monitoring includes years of data during some of the lowest flow periods on record for the Roanoke River.

Again there is no sampling data downstream of the Plant discharge to substantiate any impairment, the hydraulic conditions change dramatically above and below the Plant's discharge with the confluence of Tinker Creek and the backwater effect created by Niagara Dam, and the fact that the Plant's TSS release at full permitted flow represents less than 1% of the modeled sediment output annually to the impaired stream segment, there appears to be no reason to limit TSS discharges from the WPC Plant.

In my previous comments I stated, as an alternative to resolve this issue, that the Authority would accept a TSS allocation reflecting 10 mg/l (monthly average) and 15 mg/l (weekly average) at 62 mgd, with written provision in the TMDL that the applicable TSS allocation for the Regional WPC Plant following further expansion would again be based on design flow and these concentrations. This is effectively a 945-ton per year allocation. Setting aside the non-settleable nature of the material, approximately half of the TSS load is volatile and will be degraded and removed. This alone gets the allocation back to approximately the same amount proposed by the report's authors. Factor in that the remaining half of the TSS load is unlikely to settle (it would take an electrochemical coagulation process such as used at a drinking water treatment plant) and there would appear to be more than enough justification for the allocation and limits requested.

As DEQ staff is aware, our request to change TSS limits does not come lightly. Staff is attempting to modify the filters to maximize the amount of flow that can be treated by the Plant during peak rain events. This \$50 million dollar effort aims to significantly reduce the frequency of partially-treated effluent discharges from the equalization facilities. Although this would be a minor victory in the overall problem to restore the river's benthic health, reducing these discharges is the real success that can be had. I submit that if you truly believe that sediment is causing the benthic impairment then your only course of action is to grant one of the two options presented. If you believe that the Plant's discharge is affecting benthic habitat for reasons other than sediment, you should undertake a study to determine the validity of this belief.

In summary, the two options presented are appropriate given both the volatile nature of the Plant's TSS load and the fact that the TSS is not likely to settle under either turbulent or quiescent conditions. If DEQ declines to select one of these two options presented, the Authority must insist that DEQ comply with state law (and good science) governing "Plans to Address Impaired Waters," which requires an analysis of the "associated costs,

benefits and environmental impact” of addressing impairment. Va. Code § 62.1-44.19:7. The Authority believes this analysis will confirm its position. If need be, this request will be made directly to the State Water Control Board.

The final filter data report is running a few days behind schedule. I expect that it will be available and transmitted to your office by Nov 9, 2005. Please do not hesitate to contact me if you have any questions or would like to discuss the issues raised by this correspondence.

Sincerely,

Michael T. McEvoy
Executive Director, Wastewater Services

cc: Gary Robertson, Executive Director, Water Operations
Scott Shirley, Director WPC
File, TMDL Development



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

WEST CENTRAL REGIONAL OFFICE

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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Steven A. Dietrich
Regional Director

March 6, 2006

Michael T. McEvoy
Western Virginia Water Authority
601 S. Jefferson Street
Roanoke, VA 24011

Re: Draft Biological TMDL Development for Roanoke River, Virginia

Dear Mr. McEvoy:

Thank you for your comments regarding the benthic Roanoke River TMDL Study. I appreciate your attendance at the public meetings. Your participation has added much value to the TMDL process. I look forward to your continued participation during the implementation process, where your expertise will be needed.

There were many concerns in the comment document(s) you sent to the Virginia Department of Environmental Quality (VDEQ) and I have attempted to provide detailed answers to each of these concerns in a question and answer format. Please contact me at (540)-562-6724 if you have further questions.

The final draft can be found on VDEQ's website at the following web address:

<http://www.deq.virginia.gov/tmdl/drftmdls/uroanbc.pdf> .

Sincerely,

A handwritten signature in black ink, appearing to read "Jason R. Hill".

Jason R. Hill
Regional TMDL Coordinator

cc: Greg Anderson, Department of Environmental Quality
Kip Foster, Department of Environmental Quality
Marcia Degan, Department of Environmental Quality

Responses to Letters Dated September 16, 2005 and November 3, 2005

Benthic TMDL Report Comments

Issue #1 – The Waste Load Allocation (WLA) for WVWA’s Virginia’s Pollutant Discharge Elimination System (VPDES) Stormwater Industrial Permit is low due to incorrect plant acreage, underestimated annual average runoff levels, and failure to account for adjacent properties whose stormwater enter the WVWA property.

Issue #1 Response – The modeled maximum modeled runoff depth average annual runoff for industrial land cover (average 30% pervious and 70% impervious) was calculated to be 21.54 cm per year (8.48 inches). I agree that this is low and inconstant with TMDL WLA allocations that have been calculated in nearby watersheds. This was corrected and the new annual runoff is 72.54 cm. The facility acreage of 105.6 acres was determined to be an accurate estimation.

Issue #2 – Several facilities seem to be missing WLA in the Roanoke TMDL Report.

Issue # 2 Response – Carvin’s Cove Water Treatment Plant (WTP) and Crystal Spring Filtration Facility need to be given allocations. There are several facilities missing including Shawsville Sewage Treatment Plant (STP), Elliston STP, Blacksburg Country Club STP. These allocations have been calculated (they were sent to me for review), but for some reason did not make the draft report. These facilities were included in the final document.

Issue #3 – Proposed TSS WLA limits should not be included in the TMDL for the following 4 reasons: 1) The TSS out of the Roanoke Regional Water Pollution control Plant (RRWPCP) are organic solids which do not settle, 2) the RRWPCP should not even be in the impaired segment due to lack of data downstream and changes in hydrology, 3) The amount of solids coming out of the plant are very small compared with the amount of solids in the Roanoke River especially on a rainy day. Also, 4) the WVWA does not like the negative comments mentioned in the report about their effluent or the interceptor replacement project.

Issue #3 Responses –

1) In order to guarantee an EPA approved TMDL, VDEQ is required to assign a solids allocation for all permitted facilities using TSS to calculate the WLA. WLA allocations for permitted facilities are calculated using design flow and average monthly loading or average monthly concentration. The current permitted limit would allow an average annual load of 160 tons per year (using 42 MGD and 2.5 mg/L TSS). Recognizing that the WVWA is undertaking a large expansion in order to reduce overflows and treat additional wastewater, VDEQ TMDL staff agreed to expand the average annual load based on the ‘Filter Pilot Testing Report’. The data provided to VDEQ on November 14, 2005 by WVWA concludes that the ‘average performance of the filter should be approximately 5 mg/L’. Using this information and the new design flow, VDEQ has calculated the average annual load to be 472.2 tons per year (using 62 MGD and 5.0 mgL/ TSS). The average annual load calculated for this TMDL study is fair and flexible enough to meet the WVWA need to treat stormwater peaks reaching the plant during sustained rainy

conditions. If needed, this allocation can be reviewed further once all filters are online and VDEQ better understands how the new plant will operate.

2) VDEQ has listed the 11 mile segment of the Roanoke River as biologically impaired in the 1996 303(d) Report, 1998 303(d) Report, 2002 303(d) Report, and the 2004 303(d) Report. These segments have been listed by VDEQ and approved by EPA for over 10 years. The listing is consistent with EPA listing guidance and VDEQ never received public comment on this segment listing. The segment starts at Mason's Creek and ends at Niagara Dam. The WVWA discharges into this listed segment therefore must be included in the TMDL. The Smith Mountain Lake Association (SMLA) and Virginia Save Our Streams (VASOS) have requested an additional VDEQ biological monitoring station be placed at Explore Park. Five of the eight biological assessments submitted by VASOS from Explore Park were ecologically unacceptable. VDEQ collected biological data on October 26, 2005 and found the site 'slightly impaired'. VDEQ assessment staff will need to review more data, but a new impaired segment in the future could end at the Back Creek confluence with the Roanoke River.

3) VDEQ agrees that the solids load entering the Roanoke River is small; the TMDL report indicates that the WVWA is less than 2% of the entire load. However, even this small amount of solids entering the river needs a WLA to ensure the discharge is legal.

4) The negative comments about the WVWA effluent have been removed from the stressor identification chapter. A statement that the effluent data was evaluated was added in Chapter 3 and the following statement was added to the paragraph on page 3-10: "All discharge violations occurred downstream of the benthic monitoring stations". The sediment sources to the Roanoke River are diverse and result from over 100 years of development in the valley. Additional language has been added to Chapter 4 to emphasize that the sediment problem did occur overnight from the inceptor replacement project. However, the interceptor project was reported by the biologist as 'one' of the stressor he noted in the watershed in his 2004 Water Quality Assessment 305(b)/303(d) Integrated Report Fact Sheet and this language from the fact sheet remains in the report.

Issue #4 – Please review pretreatment facilities and make certain they are coming to the WVWA.

Issue # 4 Response – As mentioned in the response to Issue #2, these facilities are being reviewed with VDEQ's Pre-treatment coordinator and Permit Manager to ensure the correct facilities receive a WLA.

Issue #5 – Please review and correct various editorial comments and corrections. These have been confirmed and corrected.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, Virginia 23061



DEQ - WCRO

SEP 28 2005

RECEIVED

September 22, 2005

Mr. Jason R. Hill

Virginia Department of Environmental Quality
3019 Peters Creek Road
Roanoke, Virginia 24019

Re: Roanoke River
Benthic TMDL
Montgomery County, Virginia

Dear Mr. Hill:

The U.S. Fish and Wildlife Service (Service) has reviewed the Virginia Department of Environmental Quality's (DEQ) draft 303(d) Clean Water Act, Total Maximum Daily Load (TMDL) document, *Benthic TMDL Development for the Roanoke River, Virginia* (August 2005). The impaired segments are listed as follows: 9.87 miles beginning at the confluence of Mason Creek with the mainstem Roanoke River and extending downstream to the Western Virginia Water Authority outfall (WVWA) on the Roanoke River, and 1.46 miles beginning at the WVWA outfall and extending downstream to the backwaters of Niagara Dam impoundment. The following comments are provided under the provisions of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) in an effort to ensure protection of endangered and threatened species and the conservation of all fish and wildlife resources of the Commonwealth.

Endangered Species Act Comments

The Service has reviewed the information provided in the draft document and believes that the project, as proposed, is not likely to adversely impact federally listed species or designated critical habitat. The Roanoke logperch (*Percina rex*), federally listed endangered, occurs throughout the Roanoke River watershed including the reaches addressed in this TMDL development document. If the final TMDL changes significantly, or if additional information on the distribution of listed or proposed species or designated critical habitat becomes available, this determination may be reconsidered.

Fish and Wildlife Coordination Act Comments

The Service notes that the Virginia Stream Condition Index (VSCI) for the reference watershed, identified as the Roanoke River at Dixie Caverns (river mile 224.54) and extending upstream into the North Fork Roanoke River and South Fork Roanoke River, barely scores as non-impaired. The average VSCI score for this station (4AROA224.54) is 62.1. The VSCI non-impaired threshold score is 61. According to the *Stream Condition Index for Virginia Non-Coastal Streams* (VSCI document) (2003), nearly half of the scores (seven out of 16) reported for this station score as impaired. The VSCI document also reports benthic monitoring station data for the North Fork Roanoke River (river mile 9.01) and South Fork Roanoke River (river mile 12.43). These stations are relatively far upstream in the respective watersheds, yet data provided in Appendix D of the VSCI document yield average scores (North Fork, 60.5) and South Fork, 61.5), indicating the sites are borderline impaired. Based on the VSCI scores for the North Fork, South Fork and Roanoke River mainstem at Dixie Caverns, the Service believes that the upstream reference watershed exhibits impairment and marginally supports the Commonwealth's general aquatic life use goal.


The Service offers the following recommendations for your consideration in the TMDL development process. We recommend that the DEQ establish benthic monitoring stations in the North Fork Roanoke River and South Fork Roanoke River just upstream of their confluences with the mainstem and implement annual, or biannual, benthic monitoring at the upstream and downstream stations in each watershed. Second, we recommend that the Virginia DEQ set sediment TMDL goals for the North Fork Roanoke River and South Fork Roanoke River, as well as the mainstem Roanoke River, so that sediment loadings from the North and South Fork to the mainstem are reduced and the aquatic life use goal may be more fully supported. Reconnaissance of the North Fork Roanoke River and South Fork Roanoke River watersheds by Service personnel in spring 2005 documented numerous opportunities for stream bank restoration and livestock exclusion. Such projects would reduce sediment loading in the watersheds and in the mainstem Roanoke River, reduce instream temperatures, and lower bacterial counts. Biomonitoring data, collected over time in the two watersheds can be used to evaluate improvements in stream health. Eventually, the biomonitoring station at Dixie Caverns (river mile 224.54) could again replace the downstream monitoring in the North Fork and South Fork Roanoke rivers. Reducing sediment loading to the North Fork and South Fork Roanoke rivers, in conjunction with projects to reduce sediment loading in the Roanoke River mainstem watershed, will help achieve the goal of the TMDL implementation process for the Roanoke River.


Mr. Jason Hill

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The Service appreciates the opportunity to coordinate with the Virginia Department of Environmental Quality on the draft *Benthic TMDL Development for the Roanoke River, Virginia*. If there are any questions, please contact Cindy Kane of this office at (804) 693-6694, extension 109 (email: cindy_kane@fws.gov).

Sincerely,

A handwritten signature in dark ink, appearing to read "Bridgett Costanzo". The signature is fluid and cursive, with the first name "Bridgett" and last name "Costanzo" clearly distinguishable.

for Karen L. Mayne
Supervisor
Virginia Field Office



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

WEST CENTRAL REGIONAL OFFICE

3019 Peters Creek Road, Roanoke, Virginia 24019

(540) 562-6700 Fax (540) 562-6725

www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Steven A. Dietrich
Regional Director

March 6, 2006

Ms. Karen L. Mayne
United States Department of the Interior
Fish and Wildlife Service
Ecological Services
6669 Short Lane
Gloucester, Virginia 23061

Re: Draft Biological TMDL Development for Roanoke River, VA

Dear Ms. Mayne:

Thank you for your letter regarding the benthic Roanoke River TMDL study. Virginia Department of Environmental Quality (VDEQ) appreciates the time and effort the United States Fish and Wildlife Service has taken to participate in the TMDL process and we look forward to working with your staff on the TMDL implementation plan.

I have attempted to address all the concerns that the Fish and Wildlife Service raised in a question and answer format. Please contact me at (540)-562-6724 if there are anymore questions.

The final draft can be found on VDEQ's website at the following web address:

<http://www.deq.virginia.gov/tmdl/drftmdls/uroanbc.pdf> .

Sincerely,

A handwritten signature in black ink, appearing to read "Jason R. Hill".

Jason R. Hill
Regional TMDL Coordinator

cc: Greg Anderson, Department of Environmental Quality
Kip Foster, Department of Environmental Quality

USFWS Concern: The Fish and Wildlife Service notes that the reference watershed used to set the TMDL barely scores as non-impaired by the Virginia Stream Condition Index (VSCI).

VDEQ Response: It difficult to find unimpacted forth and fifth order river systems to set reference thresholds. The reference station 4AROA224.54 does contain human impacts including agriculture, roads, habitat alteration and urban development. However, this reference site made it through TetraTech's reference filter and was used in the development of the VSCI. The reference site contains similar geology, habitat, size, and is within the same ecoregion as the impacted sites. This reference watershed allows VDEQ to set a reasonable watershed sediment goal. It should be noted that the City of Roanoke objected to this reference watershed because it contains a significant amount of forested land and very little urban development.

Concern: The Fish and Wildlife Service recommends monitoring at the outlets of the North Fork of the Roanoke River and the South Fork of the Roanoke River to determine the health of these major tributaries.

VDEQ Response: VDEQ will consider adding these new stations during the TMDL Implementation Plan to track improvements in the watershed. The regional biologist has not found the biological scores low enough to initiate a TMDL study in the North Fork and South Fork of the Roanoke River at his current stations.

Concern: The Fish and Wildlife Service recommends that the South Fork and North Fork of the Roanoke River receive sedimentation goals and that these watersheds should be targeted for best management practices.

VDEQ Response: VDEQ agrees that significant opportunities for water quality improvement and restoration can be found in the North Fork and South of the Roanoke River. These watersheds are above the impaired segment on the mainstem of the Roanoke River and therefore have been included in the TMDL watershed sediment goal. The North Fork and South Fork of the Roanoke River will be targeted for implementation and available for targeted cost share funds.

September 16, 2005

Mr. Jason R. Hill
Regional TMDL Coordinator
Virginia Dept. of Environmental Quality
West Central Regional Office
3019 Peters Creek Road
Roanoke, Virginia 24019

Re: Comments to Proposed
Benthic TMDL for the Roanoke
River

Dear Mr. Hill:

The City of Roanoke appreciates the opportunity of have participated in the public meetings leading up to the development of the draft Benthic TMDL for the Roanoke River. Please accept this correspondence as comments to the proposed Benthic TMDL.

The August 2005 draft Benthic TMDL report, prepared by The Louis Berger Group, Inc. identifies sediment as the primary stressor impacting benthic invertebrates with potential sources of sediment loading in the watershed resulting from urban stormwater runoff and streambank erosion.

For the TMDL development, the *Reference Watershed Approach* was applied. "Under the reference watershed approach, the TMDL endpoint for an impaired watershed is established based on the conditions in a similar, but non-impaired reference watershed." The City of Roanoke objects to the reference watershed used in developing the Benthic TMDL for the Roanoke River.

Mr. Jason R. Hill

Virginia Dept. of Environmental Quality

September 16, 2005

Page 2 of 2

Section 5.2.2, Land Use, states, "both the impaired and reference watershed are primarily forested; the percentage of these watersheds comprised of forest land cover is 69.9% and 77.9% respectively." However, for comparison, the reference watershed is approximately 8% more forested than the impaired watershed and the draft TMDL reports states, "Sediment loads from forested land are typically low due to extensive root systems...." With regards to developed (urban) lands, the impaired (Roanoke) watershed consists of 11.1% of developed land while the reference watershed only consists of 2.7% of developed land; a difference of 8.4%. The draft TMDL reports also states, "Sediment loads from developed lands tend to be high."

Therefore, the draft TMDL endpoints were developed based upon a reference watershed that not only contains a greater percentage of forested land, but more importantly, a lesser percentage of developed land. Careful consideration should have been given for identifying a reference watershed with greater similarities to the impaired watershed.

As a result, the City of Roanoke objects to the proposed Benthic TMDL as it has been prepared and with the identified reductions, and is hereby entering its objection into the public record. Additionally, the City of Roanoke objects to any regulatory actions that may arise out of these reductions, especially in regards to permit renewals.

I appreciate you considering the issues I have addressed in this comment.

Sincerely,





COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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March 6, 2006

Mr. Paul J. Truntich, Jr.
Environmental Administrator
215 Church Avenue, S.W.
Roanoke, Virginia 24014

Re: Draft Biological TMDL Development for Roanoke River, VA

Dear Mr. Truntich:

Please accept my sincere appreciation for attending all of the public meetings and for participating in the TMDL process. Thank you for your letter regarding the benthic Roanoke River TMDL study. The major objection by the City of Roanoke is the selected reference site used to set the TMDL allocations. Selecting a reference watershed to set a watershed goal is a difficult task, especially for a river system as large as the Roanoke River. However, the selected reference site does contain human impacts from road construction, urban development, habitat alteration, and agriculture. The reference watershed is similar in geology, ecoregion, and size to the impaired segment. The U.S. Fish and Wildlife Service submitted comments expressing their concerns that the reference watershed 'barely met reference conditions'. Virginia Department of Environmental Quality (VDEQ) maintains that this is a fair reference watershed for the reasons stated above and believes the watershed goal put forth in the TMDL study will improve water quality in the Roanoke River.

VDEQ looks forward to working with your staff on the TMDL implementation plan. Please contact me at (540)-562-6724 if there are anymore questions.

The final draft can be found on VDEQ's website at the following web address:
<http://www.deq.virginia.gov/tmdl/drftmdls/uroanbc.pdf>.

Sincerely,

A handwritten signature in black ink, appearing to read "Jason R. Hill".

Jason R. Hill
Regional TMDL Coordinator

cc: Greg Anderson, Department of Environmental Quality
Kip Foster, Department of Environmental Quality



County of Roanoke

DEPARTMENT OF COMMUNITY DEVELOPMENT

DIRECTOR, ARNOLD COVEY
ASSISTANT DIRECTOR, GEORGE W. SIMPSON, III, P.E.
CHIEF PLANNER, JANET SCHEID

DEQ - WCRO

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DEVELOPMENT REVIEW
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MAPPING/GIS
PERMITS
PLANNING & ZONING
STORMWATER MANAGEMENT

September 16, 2005

Mr. Jason R. Hill
Virginia Department of Environmental Quality
3019 Peters Creek Road
Roanoke, Virginia 24019

RE: TMDL Limits for the Roanoke River

Dear Mr. Hill:

The County of Roanoke would like to go on record as objecting to proposed TMDL limits for the Roanoke River at this time and would encourage the Department of Environmental Quality to continue discussions with potentially affected localities in dealing with this very important issue that has serious impacts for everyone.

I look forward to working with you towards the goal of restoring water quality in the Roanoke River and its tributaries.

Yours truly,

George W. Simpson, III, P.E.
Assistant Director of Community Development



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March 6, 2006

Mr. George W. Simpson, III
Assistant Director of Community Development
P.O. Box 29800
Roanoke, Virginia 24018

Re: Biological TMDL Development for Roanoke River, VA

Dear Mr. Simpson:

Thank you for your letter regarding the Roanoke River TMDL studies. I appreciate Roanoke County's involvement at public meetings and support your recommendation to continue working with Roanoke County throughout the TMDL process. Virginia Department of Environmental Quality (VDEQ) and Virginia Department of Conservation and Recreation (VDCR) look forward to working with you on the TMDL implementation plan.

Please contact me at (540)-562-6724 if there are anymore questions.

The final draft can be found on VDEQ's website at the following web address:

<http://www.deq.virginia.gov/tmdl/drftmdls/uroanbc.pdf> .

Sincerely,

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Jason R. Hill
Regional TMDL Coordinator

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Kip Foster, Department of Environmental Quality